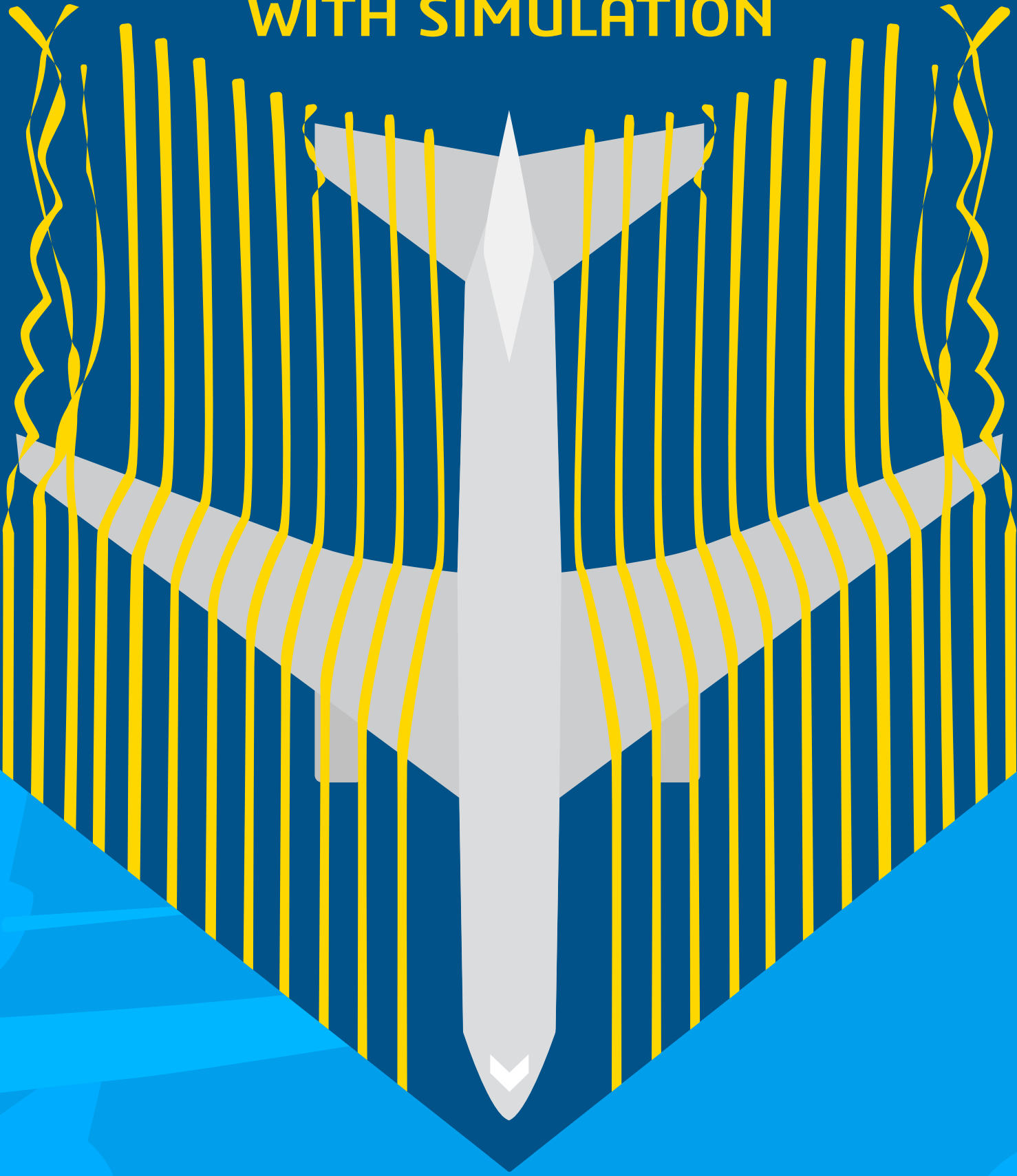


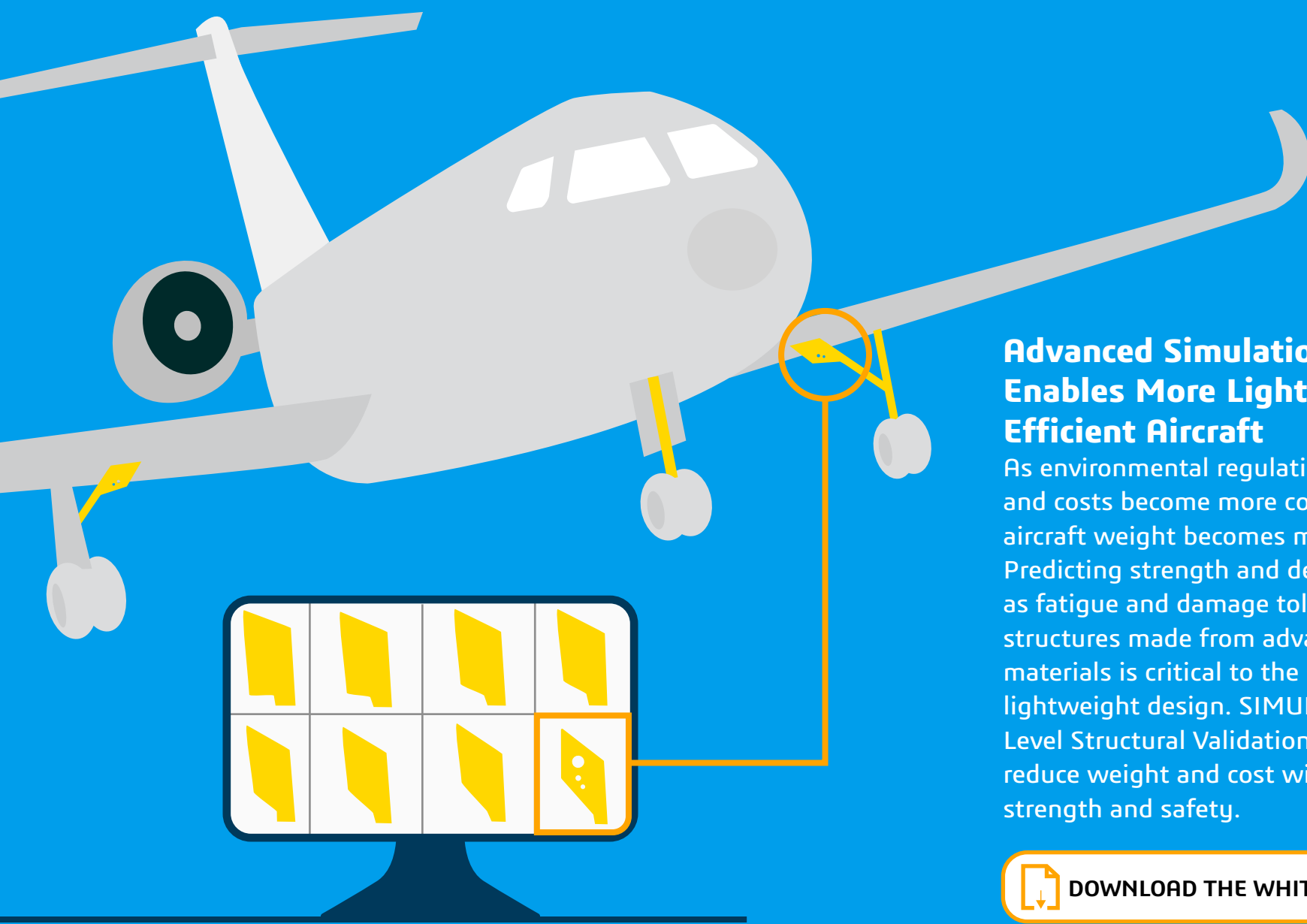
KEEPING AIRPLANES LIGHTWEIGHT, COMFORTABLE AND QUIET WITH SIMULATION



Fluids Simulation Optimizes Flight Performance at All Stages from Takeoff to Landing

Assessing the aerodynamic performance of an aircraft is complex and requires more than standard simulation tools, which mainly predict how an aircraft will behave in normal cruise conditions. Predicting behavior outside of those conditions involves capturing complex geometric details. SIMULIA's Aircraft Aerodynamic Performance workflows include those details and accurately simulate aircraft behavior in takeoff, landing and all other stages of flight.

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Advanced Simulation Technology Enables More Lightweight and Efficient Aircraft

As environmental regulations become stricter and costs become more competitive, reducing aircraft weight becomes more of a priority. Predicting strength and deformation as well as fatigue and damage tolerant behavior of structures made from advanced lightweight materials is critical to the success of more lightweight design. SIMULIA's Sub-System Level Structural Validation workflows can reduce weight and cost without sacrificing strength and safety.

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Mitigating Aircraft Noise for Community Comfort

Aircraft noise is a growing concern as air travel expands and the number of flights increases, most of them taking off and landing at airports near residential areas. Currently, aircraft noise is difficult to predict as it can only be properly evaluated in flight tests rather than wind tunnels. By the flight testing stage, it is much more difficult to make changes in the aircraft's design. Aircraft Community Noise capabilities allow for early assessment of aircraft noise and its impact on the surrounding environment, thus enabling steps to be taken to mitigate those effects.



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97

billion gallons of fuel burned in 2019¹

1%

reduction in weight reduces fuel consumption by 0.75%²

50%

of airframes made of advanced lightweight composites³

13

cities worldwide have more than four airports⁴

1 <https://www.statista.com/statistics/655057/fuel-consumption-of-airlines-worldwide>; 2 https://en.wikipedia.org/wiki/Fuel_economy_in_aircraft; 3 https://www.boeing.com/commercial/aeromagazine/articles/qtr_4_06/article_04_2.html; 4 https://en.wikipedia.org/wiki/List_of_cities_with_more_than_one_airport